## NEMA BL 2

# ENERGY EFFICIENCY FOR ELECTRONIC BALLASTS FOR T8 FLUORESCENT LAMPS

## **NEMA Standards Publication BL 2-2009**

Energy Efficiency for Electronic Ballasts for T8 Fluorescent Lamps

Published by:

National Electrical Manufacturers Association 1300 North 17th Street, Suite 1752 Rosslyn, Virginia 22209

www.nema.org

© Copyright 2009 by the National Electrical Manufacturers Association. All rights, including translation into other languages, reserved under the Universal Copyright Convention, the Berne Convention for the Protection of Literary and Artistic Works, and the International and Pan American Copyright Conventions.

#### NOTICE AND DISCLAIMER

The information in this publication was considered technically sound by the consensus of persons engaged in the development and approval of the document at the time it was developed. Consensus does not necessarily mean that there is unanimous agreement among every person participating in the development of this document.

The National Electrical Manufacturers Association (NEMA) standards and guideline publications, of which the document contained herein is one, are developed through a voluntary consensus standards development process. This process brings together volunteers and/or seeks out the views of persons who have an interest in the topic covered by this publication. While NEMA administers the process and establishes rules to promote fairness in the development of consensus, it does not write the document and it does not independently test, evaluate, or verify the accuracy or completeness of any information or the soundness of any judgments contained in its standards and guideline publications.

NEMA disclaims liability for any personal injury, property, or other damages of any nature whatsoever, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use of, application, or reliance on this document. NEMA disclaims and makes no guaranty or warranty, express or implied, as to the accuracy or completeness of any information published herein, and disclaims and makes no warranty that the information in this document will fulfill any of your particular purposes or needs. NEMA does not undertake to guarantee the performance of any individual manufacturer or seller's products or services by virtue of this standard or guide.

In publishing and making this document available, NEMA is not undertaking to render professional or other services for or on behalf of any person or entity, nor is NEMA undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances. Information and other standards on the topic covered by this publication may be available from other sources, which the user may wish to consult for additional views or information not covered by this publication.

NEMA has no power, nor does it undertake to police or enforce compliance with the contents of this document. NEMA does not certify, test, or inspect products, designs, or installations for safety or health purposes. Any certification or other statement of compliance with any health or safety–related information in this document shall not be attributable to NEMA and is solely the responsibility of the certifier or maker of the statement.

## CONTENTS

For	eword		ii
1	Scope1		1
2	Referenced Documents		1
3	Definitions		1
	3.1	Ballast	1
	3.2	Ballast Efficacy Factor (BEF)	1
	3.3	Ballast Factor (BF)	1
	3.4	Ballast Frequency	1
	3.5	Power Factor	
	3.6	Lamp Lumens (Im)	
4	General Requirements		2
	4.1	Ballast Requirements	2
	4.2	Multi-Voltage Ballasts	2
	4.3	Test Requirements	2
	4.4	Ballast Efficacy Factor	2
5	Marki	ng Requirement	3

## Foreword

This standard includes energy-efficiency requirements for declaration as NEMA Premium<sup>®</sup>-rated products. All safety-related requirements and energy-efficiency requirements shall be met for NEMA Premium ratings.

In the preparation of this standards publication, input of users and other interested parties was sought and evaluated. Inquiries, comments, and proposed or recommended revisions should be submitted to the Ballast Subdivision of NEMA by contacting:

Vice President, Technical Services National Electrical Manufacturers Association 1300 North 17th Street, Suite 1752 Rosslyn, Virginia 22209

The standards or guidelines presented in a NEMA standards publication are considered technically sound at the time they are approved for publication. They are not a substitute for a product seller's or user's own judgment with respect to the particular product referenced in the standard or guideline, and NEMA does not undertake to guarantee the performance of any individual manufacturer's products by virtue of this standard or guide. Thus, NEMA expressly disclaims any responsibility for damages arising from the use, application, or reliance by others on the information contained in these standards or guidelines.

The Ballast Section developed this standard. Section approval of the standard does not necessarily imply that all section members voted for its approval or participated in its development. At the time the standard was approved, the Ballast Section was composed of the following members:

Acuity Brands Lighting—Conyers, GA Advanced Lighting Technologies, Inc.—Solon, OH Cooper Lighting—Vicksburg, MS Espen Technology, Inc.—Paramount, CA GE Consumer & Industrial, Lighting Systems—East Flat Rock, NC Holophane—Newark, OH Hubbell Lighting, Inc.—Orange, CT Keystone Technologies, LLC—Blue Bell, PA Lutron Electronics Company, Inc.—Coopersburg, PA Osram Sylvania Electronic Control Systems—Lake Zurich, IL Philips Lighting Electronics North America—Rosemont, IL Robertson Worldwide—Blue Island, IL SunPark Electronics, Corp.—Gardena, CA Technical Consumer Products, Inc.—Aurora, OH Universal Lighting Technologies—Nashville, TN

## 1 Scope

This standards publication contains energy-efficiency requirements for evaluating electronic ballasts designed for use with four-foot 32-watt T8 fluorescent lamps with a lumen output greater than or equal to 3100 lumens.